

In The Claims

Please amend the claims as follows:

- 1 1. (currently amended) An integrated paper having active particles
2 immobilized therein, said integrated paper comprising of:
3 a plurality of fibers fibrillated at a temperature greater than about 30°C, wherein
4 said fibrillated fibers have an average fiber diameter of less than about 1000
5 nm; and
6 active agents selected from the group consisting of metals, metal salts, metal
7 oxides, alumina, carbon, activated carbon, silicates, ceramics, zeolites,
8 diatomaceous earth, activated bauxite, fuller's earth, calcium sulfate,
9 titanium dioxide, magnesia, magnesium hydroxide, magnesium oxide,
10 manganese oxides, iron oxides, perlite, talc, clay, bone char, calcium
11 hydroxide, calcium salts, or combinations thereof; and
12 a microbiological interception enhancing agent on at least a portion of at least
13 some of said fibrillated fibers and/or said active agents, said microbiological
14 interception enhancing agent comprising a biologically active metal
15 precipitated with a counter ion of a cationic material that is residing on said
16 at least portion of said fibrillated fibers and/or said active agents to form a
17 colloidal metal precipitate on a surface of said at least portion of said
18 fibrillated fibers and/or said active agents,
19 wherein said integrated paper has a mean pore size of less than or equal to
20 about 2 microns.

1 2. (Original) An integrated paper of claim 1 wherein said fibrillated fibers
2 comprise Lyocell.

1 3. (Previously presented) An integrated paper of claim 2 wherein the lyocell
2 has an average fiber diameter of less than about 400 nm.

1 4. (Previously presented) An integrated paper of claim 1 wherein said active
2 agents have an average particle size of less than or equal to about 1 micron to
3 about 5000 microns.

1 5. (Original) An integrated paper of claim 1 wherein the average diameter of
2 said fibrillated fibers is less than an average particle size of said active agents.

1 6. (Original) An integrated paper of claim 1 further including binder fibers or
2 particles.

1 7. (Original) An integrated paper of claim 1 wherein said fibrillated fibers and
2 said active agents have different settling velocities such that said integrated paper
3 has an asymmetric structure when formed by wet-laid processes.

1 8. (canceled)

1 9. (currently amended) An integrated paper comprising of:

2 a plurality of fibers fibrillated at a temperature greater than about 30°C, wherein
3 said fibrillated fibers have an average fiber diameter of less than about 400
4 nm; and
5 silver oxide particles admixed with said fibrillated fibers; and
6 a microbiological interception enhancing agent on at least a portion of at least
7 some of said fibrillated fibers, said microbiological interception enhancing
8 agent comprising a biologically active metal precipitated with a counter ion
9 of a cationic material that is residing on said at least portion of said fibrillated
10 fibers to form a colloidal metal precipitate on a surface of said at least
11 portion of said fibrillated fibers.

1 10. (Original) An integrated paper of claim 9 wherein the fibrillated fibers
2 comprise a liquid crystal polymer.

1 11. (currently amended) An integrated paper comprising of:

2 a plurality of fibers fibrillated at a temperature greater than about 30°C, wherein
3 said fibers have an average fiber diameter of less than about 400 nm;
4 a microbiological interception enhancing agent on at least a portion of at least
5 some of said fibrillated fibers, said microbiological interception enhancing
6 agent comprising a biologically active metal precipitated with a counter ion
7 of a cationic material that is residing on said at least portion of said fibrillated
8 fibers to form a colloidal metal precipitate on a surface of said at least
9 portion of said fibrillated fibers; and
10 one or more acid neutralizing agents admixed with said fibrillated fibers;

11 wherein said integrated paper can withstand a hot and corrosive environment of a
12 lube oil filter, and wherein said one or more acid neutralizing agents comprises
13 magnesium oxide, magnesium hydroxide, calcium sulfonate, magnesium sulfonate,
14 calcium phenate, magnesium phenate, or combinations thereof.

1 12. (Original) An integrated paper of claim 11 further including binder fibers or
2 particles.

1 13. (canceled)

1 14. (Currently Amended) An integrated paper comprising of:
2 a plurality of lyocell fibers fibrillated at a temperature greater than about 30°C,
3 wherein said fibrillated lyocell fibers have an average fiber diameter of less
4 than or equal to about 400 nm; and
5 activated carbon particles admixed with said fibrillated lyocell fibers, wherein
6 said integrated paper has a mean flow path of less than about 2 microns; and
7 a microbiological interception enhancing agent on at least a portion of at least
8 some of said fibrillated lyocell fibers, said microbiological interception
9 enhancing agent comprising a biologically active metal precipitated with a
10 counter ion of a cationic material that is residing on said at least portion of
11 said fibrillated lyocell fibers to form a colloidal metal precipitate on a surface
12 of said at least portion of said fibrillated lyocell fibers.

1 15. (canceled)

1 16. (Original) An integrated paper of claim 14 further including a heavy metal
2 reducing agent.

1 17. (Previously presented) An integrated paper of claim 16 wherein the heavy
2 metal reducing agent comprises particles of zeolite, silicate, or combinations thereof.

1 18. (Original) An integrated paper of claim 14 further including an arsenic
2 reducing agent.

1 19. (Original) An integrated paper of claim 18 wherein the arsenic reducing
2 agent comprises particles of iron, oxides of manganese or iron, or combinations
3 thereof.

1 20. (Currently Amended) An integrated paper comprising:
2 a plurality of fibers having an average fiber diameter of less than about 1000
3 nm; and
4 a lead reducing agent admixed with said plurality of fibers; and
5 a microbiological interception enhancing agent on at least a portion of at least
6 some of said fibers, said microbiological interception enhancing agent
7 comprising a biologically active metal precipitated with a counter ion of a
8 cationic material that is residing on said at least portion of said fibers to form
9 a colloidal metal precipitate on a surface of said at least portion of said
10 fibers,

11 wherein said integrated paper has a mean flow path of less than about 2 microns.

1 21. (canceled)

1 22. (Original) An integrated paper of claim 20 further including binder fibers or
2 particles.

1 23. (canceled)

1 24. (Currently Amended) An integrated paper of claim 20 further including a
2 carbon block, wherein said integrated paper is wrapped around the carbon block,
3 ~~including a microbiological interception enhancing agent associated with said paper~~
4 ~~comprising a cationic material having a counter ion associated therewith, which~~
5 ~~when exposed to an aqueous biologically active metal salt solution forms a colloidal~~
6 ~~metal precipitate that precipitates onto at least a portion of the surface of at least~~
7 ~~some said fibers and/or said active agents.~~

1 25-40. (Cancelled)

1 41. (Cancelled)

1 42. (Currently Amended) The integrated paper of claim 1 ~~claim 41~~ wherein said
2 colloidal metal precipitate includes a silver-amine-halide complex.

1 43. (Currently Amended) The integrated paper of claim 1 ~~claim 41~~ wherein said
2 fibrillated fibers have an average diameter of less than or equal to 250 nm and a
3 length of 1mm to about 8 mm.

1 44. (new) The integrated paper of claim 1 wherein said colloidal metal
2 precipitate is physically trapped within a matrix of said cationic material.

1 45. (new) The integrated paper of claim 1 wherein said colloidal metal
2 precipitate is bound to said cationic material.

1 46. (new) The integrated paper of claim 45 wherein said colloidal metal
2 precipitate is bound to said cationic material by adsorption.

1 47. (new) The integrated paper of claim 45 wherein said colloidal metal
2 precipitate is bound to said cationic material by electrostatic forces.